0029

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

November 14, 2007

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Dana Dean, P.E., Senior Reclamation Hydrologist

RE: 2007 First Quarter Water Monitoring, Canyon Fuel Company, LLC, SUFCO Mine, C/041/0002-WQ07-1, Task ID #2607

The SUFCO Mine is an operating longwall mine. Current operations are in the Quitchupah and Muddy Tracts. Water monitoring requirements can be found in Section 7.3.1.2 of the MRP, especially Tables 7-2, 7-3, 7-4, 7-5, and 7-5A. Page 7-48 contains the important statement that (non Box-Canyon, non-UPDES) "monitoring sites are sampled three times per year," meaning the second, third, and fourth quarters.

1. Was data submitted for all of the MRP required sites? YES ☒ NO ☐

Springs

The MRP does not require first quarter sampling of springs.

Streams

The MRP does not require first quarter sampling of streams.

Wells

The MRP does not require first quarter sampling of streams.

UPDES

The UPDES Permit/MRP require bi-weekly monitoring of 3 outfalls: 001, mine water discharge to Pine Canyon; 002, sedimentation pond discharge to Pine Canyon; and 003, the mine water discharge to the North Fork of Quitchupah Creek.

The Permittee submitted all required samples for the UPDES sites. Outfall 001 reported no flow.

2. Were all required parameters reported for each site? YES ☒ NO ☐

3. Were any irregularities found in the data? YES ☒ NO ☐

A few parameters fell outside of two standard deviations from the mean encountered at the respective sites. They were:

Site	Parameter	Value	Standard Deviations from Mean	Mean
UT-0022918-002 – Jan 3	Flow	70.2 gpm	2.97	9.48 gpm
UT-0022918-002 – Feb 7	Flow	70.2 gpm	2.97	9.48 gpm
UT-0022918-003 – Jan 3	Flow	809 gpm	2.48	3082.66 gpm
UT-0022918-003 – Mar 7	Water Temperature	10.4 °C	2.12	13.41 °C

It is not surprising that water temperature, a very flux parameter, would have values outside of two standard deviations from time to time.

The higher than usual flows recorded at Outfall 002 were attributed to storm events. The lower than usual flow from Outfall 003 was due to a reduction in pumping.

Most parameters necessary to perform routine Reliability Checks are not required at the UPDES sites. For the one sample where enough information was given just to check the TDS/conductivity ratio; it fell outside of standard values:

Site	Reliability Check	Value Should Be…	Value is…
UT-0022918-003 – Jan 17	TDS/Conductivity	>0.55 & <0.75	0.18

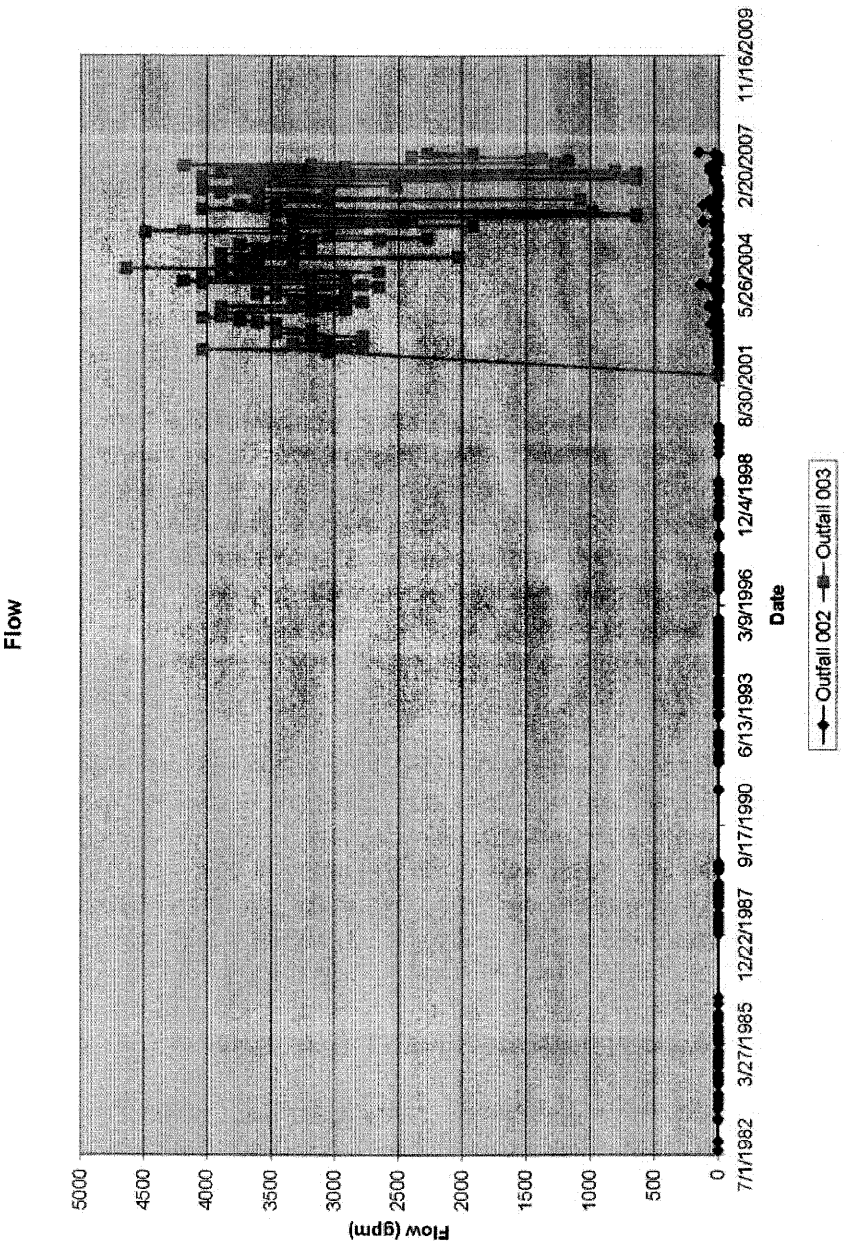
Total iron exceeded the permit limit at UT-0022918-002 on March 8. The permit limit is 1.0 mg/L, and the concentration that day was 1.05 mg/L. The exceedence occurred during a runoff event, and is not representative of the iron levels at this site. In the year before this sample, the highest total iron concentration was 0.84 mg/L in February 2006, and the average was 0.53 mg/L. On March 21, the quantity had gone down to 0.07 mg/L. The exceedence was reported to the Division of Water Quality, and to the Division in a timely manner.

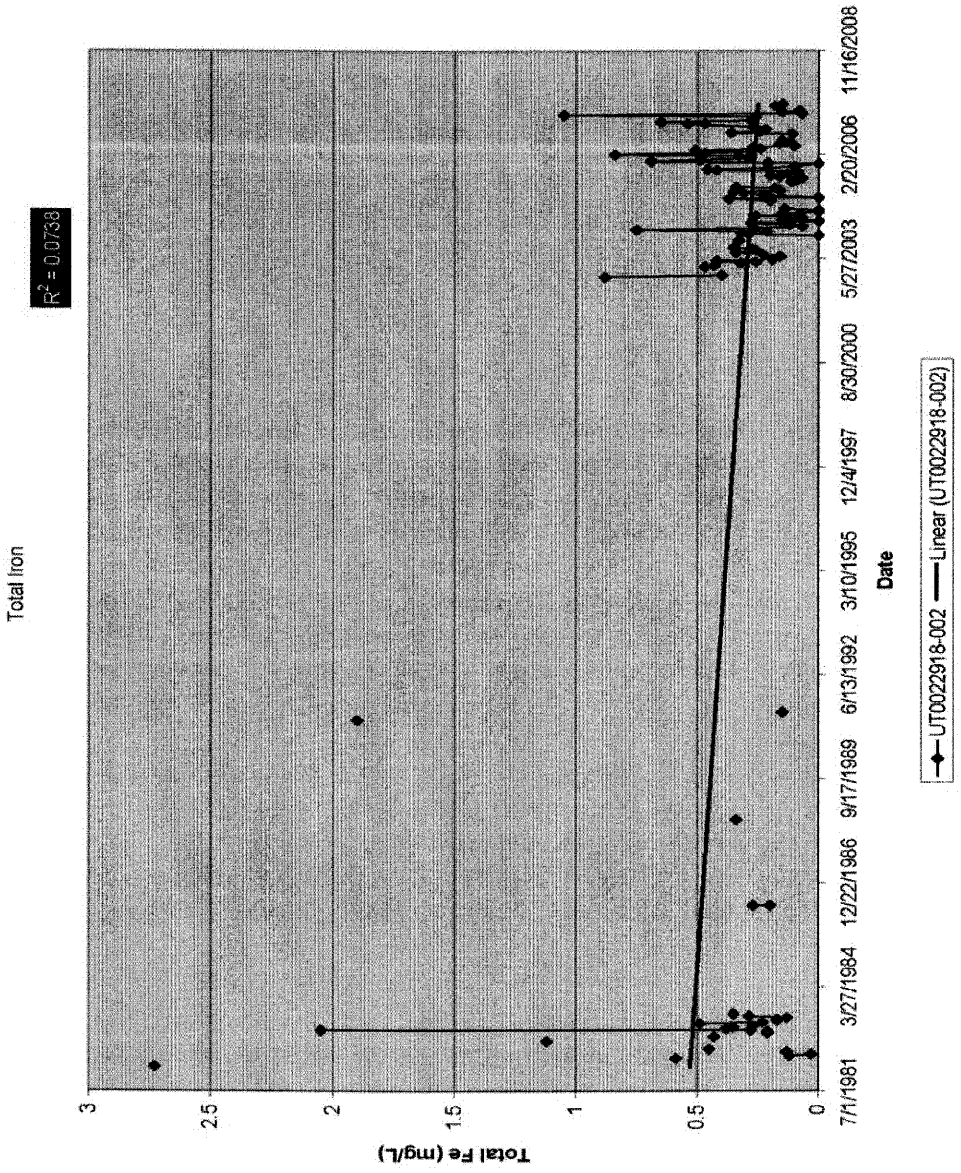
4. On what date does the MRP require a five-year re-sampling of baseline water data.

There is no commitment in the MRP to resample for baseline parameters.

5. Based on your review, what further actions, if any, do you recommend?

No further actions are necessary at this time.


Flow
Flow (gpm)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
7/1/1982
3/27/1985
12/22/1987
9/17/1990
6/13/1993
3/9/1996
12/4/1998
8/30/2001
5/26/2004
2/20/2007
11/16/2009
Date
Outfall 002
Outfall 003


Total Iron
R^2 = 0.0738
Total Fe (mg/L)
3
2.5
2
1.5
1
0.5
0
7/1/1981
3/27/1984
12/22/1986
9/17/1989
6/13/1992
3/10/1995
12/4/1997
8/30/2000
5/27/2003
2/20/2006
11/16/2008
Date
UT0022918-002
Linear (UT0022918-002)